Implementation of Reach-Up early childhood parenting programme

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Title: Implementation of Reach Up early childhood parenting program. Acceptability, Appropriateness, and Feasibility in Brazil and Zimbabwe.

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Abstract: Young children need 'nurturing care' that includes responsive caregiver-child interactions and opportunities to learn, however there are few large scale programs that build parents' ability to provide this. We developed the Reach Up early childhood parenting program and training package to provide an evidence-based, adaptable program, feasible for low resource settings. Implementation was evaluated in Brazil and Zimbabwe to inform modifications needed and challenges that implementers and delivery agents encountered. Interview guides were developed to collect information on appropriateness, acceptability and feasibility from mothers, home visitors and supervisors. Information on adaptation was obtained from country program leads and Reach Up team logs, and quality of visits from observations conducted by the supervisors. The program was well accepted by mothers and visitors who perceived benefits for the children, training was viewed as appropriate and visitors felt well prepared to conduct the visits. A need for expansion of supervisor training was identified. The program was also feasible to implement although challenges were identified including staff turnover, and implementation was less feasible for staff with other work commitments in Brazil. Most aspects of visit quality were high. The Reach Up program can expand capacity for parenting programs in low and middle income countries.

What is known:

- Responsive interactions between parent and child and early learning in the home are critical components of nurturing care needed for children to achieve their developmental potential.
- Strategies to achieve this include home visiting utilizing community workers, integration with existing services and center-based delivery approaches which includes individual and group interactions.
- When interventions are implemented in new contexts, adaptations to can improve participant involvement and retention

What this study adds:

- Responsive interactions between parent and child and early learning in the home are critical components of nurturing care needed for children to achieve their developmental potential.
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Introduction

The recent Lancet series on child development introduced the concept of 'nurturing care' as a comprehensive definition of the aspects of care young children need to support their development. Nurturing care includes adequate nutrition, access to health care, protection from violence, responsive interactions and opportunities to learn[1]. Parents are the main provider of care for children aged 0-3 years, however many families living in poverty and difficult circumstances do not have the resources and skills needed. Families need support from their communities and from government policies and programs that can strengthen their ability to provide nurturing care.

There is a growing evidence base that programs that improve parents' skills in responsive caregiving and helping children learn lead to gains in child development (e.g.[2-6]) The Jamaica home visit intervention (JHV) has the most extensive evidence with replications in Bangladesh and Colombia[5,7] and evidence for medium and long term gains[8-11], as well as adaptation and use at scale in the Peruvian Cuna Mas program[12]. Scale up of programs to support families in providing care has been identified as key strategy to promote young child development[13,14].

The Reach Up early childhood parenting program is based on the JHV and was developed to provide an evidence-based, adaptable program, feasible for low resource settings. The training package provides the tools to support agencies in implementing an evidence-based early childhood intervention. The overall aim was to facilitate building the capacity needed in governments, non-governmental organizations (NGOs) and other agencies to implement these programs. When evidence-based interventions are transported across countries and context, cultural adaptations can enhance participant attendance, retention, satisfaction, participation and home practice[15] and have been shown to increase the effectiveness of the interventions in

improving parenting behaviour [16]. However, the literature on cultural adaptation of parenting programmes largely focuses on programmes targeting child behaviour and on adapting evidence-based programmes developed in high-income countries (HIC) for different ethnic groups[16,17] and/or across countries (most commonly other HIC)[18]. The literature on transporting interventions developed for use in LMIC across countries and contexts is limited[19].

Following initial development of the package we collaborated with researchers and agencies in Brazil and Zimbabwe to use the training package and materials to implement the program. The objectives were to identify any modifications needed to the training materials and procedure, and to understand how the program was received by delivery agents and parents, and facilitators and challenges to program implementation. Adaptation of materials for the implementation context, and training of staff were conducted by the country agencies in partnership with members of the Reach Up team. We collected information on program adaptation and program delivery (quality of visits), and obtained information through qualitative interviews with varying levels of staff involved in implementation and parents, to understand their opinions of the program and staff views of the training and implementation.

In this paper we briefly describe the content of the program, and discuss the adaptation process, program delivery and qualitative data from the implementation in Brazil and Zimbabwe.

Methods

Sample

Through our networks we identified collaborators interested in piloting the Reach Up early childhood parenting program intervention. Proposals and funding for implementation were led by the country teams.

Implementation began first in Brazil in the urban south west municipality of Sao Paulo. Following some adjustments to the package the program was implemented in the rural district of Sanyati in Zimbabwe. Approach to implementation varied for example in the personnel selected to conduct the home visits and ratio of supervisors to home visitors (Table 1). For these analyses we interviewed supervisors, home visitors and mothers to obtain information on their perceptions of the program. In Brazil, the Principal Investigator, 3 Supervisors, 9 home visitors and 15 mothers were interviewed. In Zimbabwe, an Agency Leader, 2 Supervisors, 15 home visitors and 70 mothers were interviewed. All supervisors were interviewed, information on selection of home visitors and mothers for interviews is provided below under 'Procedures'.

Ethical approval for the study was given by the University of the West Indies Ethics Committee, The Medical Research Council for Zimbabwe and the Research and Ethics Committee of the School of Medicine, University of Sao Paulo. Written informed consent was obtained from all interviewees.

Intervention

The Reach Up training package contains a planning and adaptation manual, a curriculum for children 6-48 months old, a toy manual, a training manual with demonstration videos and guidelines for supervisors, details are provided in Table 2.The goal of the intervention is to improve child development through building mothers' skills and enjoyment in helping their children play and learn and improving mother-child interaction. A trained home visitor engages the mother and child in a play session to demonstrate play activities and model behaviors to promote responsive interactions between mother and child. The visitor provides positive feedback and praise to both mother and child. The visit ends with review of activities to continue

between visits and encouragement to continue the activities and to try and include them in daily routines. Play materials are left in the home and exchanged for new ones at the next visit.

Training: Home visitors attended 10-day training workshops. The workshop sessions involve brain-storming, watching videos of successful home visits with key methods highlighted, role playing, toy making and discussions. Each session typically lasts for one hour and a half with small breaks in between sessions. Towards the end of the training the visitors practice putting together the methods and activities learnt as a complete visit. Following the workshops, visitors are accompanied on practice home visits. The interactive approach to training was similar to that used previously in Jamaica, but the training manual and films, supervisor and adaptation manuals were developed for the Reach Up package.

In Brazil two groups of visitors were trained, child development agents (CDAs) and community health agents (CHAs). Community Health Agents are an existing cadre of staff in the primary care "Family Health Strategy" model in Brazil whereas the CDAs are a new cadre of staff employed specifically for this project. Both groups had a minimum of primary level education and resided in the same communities as the families they visited. CDAs received training over a ten day period, and the community health agents (CHAs) were trained over five 2-day sessions due to their work commitments. The training of the CDAs was conducted by a Reach Up team member together with the in-country principal investigator (PI). A second team member took notes on the process as this was our first training workshop with the new manual and films. Following this we revised some of the layout of the training manual and the order in which some content was introduced. The PI subsequently conducted the training of the CHAs, one month after the initial training workshop. After 6 months of intervention both groups of visitors received a 3-day refresher training from a Reach Up team member.

In Zimbabwe, the home visitors (HVs) received a 10-day training workshop led by two Reach Up team members with assistance from the supervisors for the program. A 3-day refresher workshop was provided by the supervisors after a 6 month interval before the start of the intervention.

Supervisors also attended the full intervention training and in addition received training in supportive supervision, including practice using scenarios around challenges that they or the visitors might encounter. They were also trained in the use of an observation checklist for monitoring the quality of visits. They were provided with the Supervisor Manual with guidelines for supervision, and the observation checklist.

Delivery: Information on the sites and delivery of the intervention is provided in Table 1. Four hundred mothers and children were enrolled in Brazil. Ten CHAs employed to district health centres in Sao Paulo were each asked to include 10 Reach Up home visits each week to their usual work load with a small stipend, equivalent to approximately 30% of their regular monthly salary, provided. The CHAs were employed to the health centres to conduct community visits which included visiting persons with infectious diseases and other health conditions, along with promoting child care and development.

Five CDAs were employed directly to the program by the research team at the University of Sao Paulo. These CDAs were asked to complete 20 home visits each week. For both categories of visitors, families to be visited, were assigned by the project team. Supervisors were asked to accompany the visitors on one visit per month and had monthly group meetings with all visitors at the main research office to discuss challenges and share experiences. During the intervention five of the part-time CHAs resigned from the program and four new part-time visitors were

recruited and trained. Families were visited fortnightly from June 2015 to June 2016 and the length of the visits ranged from 20-50 minutes.

For the program in Zimbabwe 200 mother-child pairs participated from areas near 12 early childhood development (ECD) centres in Sanyati district. Twenty-four teaching assistants employed to the ECD centres conducted the home visits. The teaching assistants had a minimum of primary school education. Visitors conducted 4-5 visits per week. Supervisors accompanied the visitors on a home visit at least once a month and had monthly group meetings to discuss challenges and share experiences. In Zimbabwe, the intervention started from June 2015 and continues until June 2018, families are visited fortnightly and the length of the visits range from 30-50 minutes. At the time of the data collection period 8 families were no longer participating in the intervention due to migration. During the intervention two home visitors resigned and two new visitors were recruited and trained.

Procedures

Semi-structured interview guides were used to conduct the interviews with the agency leaders, supervisors, home visitors and mothers from Brazil and Zimbabwe. In Brazil, mothers were selected based on the different types of visitors (CHAs and CDAs) conducting the home visits and on their availability for the interviews. CHAs and CDAs were also interviewed. In Zimbabwe, mothers were selected from each ECD centre and according to their availability for the interviews, at least five mothers were interviewed from each centre. Home visitors from each centre were also interviewed.

Data from the observation checklist completed by the supervisors were summarized as a measure of the quality of the visits. The checklist includes information on the conduct of the visit, the

relationship of the visitor with the mother, and child and the overall atmosphere of the visit. Each item is scored on a four point scale. Definitions for each item on the checklist were provided to the supervisors who were trained by a member of the Reach Up team in use of the checklist. The checklist is used by the supervisor to inform feedback to the visitor to improve visit quality which would affect test-retest reliability. We did not collect inter-rater reliability data however prior work suggests this would be adequate to high[20].

Interview Guides: The interview guides for the semi-structured interviews were developed using a framework approach. We developed a matrix which identified important aspects of implementation according to the content of the package and the process and context of implementation. For each of these we identified the persons from whom we would need data. Then we developed the questions that would need to be asked to obtain the information.

The interview guides for the mothers contained questions on the home visits, the materials used in the intervention, the activities conducted during the intervention and their overall experience. For the home visitors questions focused on the training workshops, the curriculum, toy manual, the materials used in the intervention, the activities conducted during the intervention, the home visits and the overall program. Supervisor interviews focused on the training workshops, how the HVs utilized the curriculum, the supervisor guidelines, the toy manual, how the HVs utilized the materials used in the intervention, how the HVs conducted the activities during the intervention, how the HVs conducted the home visits and their overall experience during the program (See Table 3). The interview guides were piloted with mothers, home visitors and supervisors from local programs in each country to ensure the questions were clear and captured the information needed.

Data Collection

Email Logs: Data was also collected from email logs from the Reach Up lead trainers who assisted with the planning, adaptation, training and implementation in these two sites. These email logs provided examples of the types of questions asked by the program leads and supervisors, adaptations conducted, and successes and challenges experienced.

Brazil: Interviews were conducted from June to July 2016, over a 6 week period at the end of the intervention period. One research assistant (RA), who had not been involved in the study, interviewed the 3 Supervisors, and the PI, 15 mothers and 9 Home Visitors (4 of 5 full time CDAs and 5 of 10 part time CHAs, including 2 who had resigned). Mothers were interviewed at home and the home visitors and supervisors were interviewed at the main research office. The interviews lasted between 45 minutes to 1 hour. The RA had experience with conducting qualitative interviews. The content and process of the Reach Up intervention and the rationale for the questions on the interview guide were reviewed with the RA. The interviews were conducted in Portuguese and translated to English for analysis.

Zimbabwe: Data was collected from September to December 2016, while the intervention was taking place. The interviewers spent at least 4 days collecting data in each of the 24 ECD centres. Two experienced qualitative researchers and three research assistants, who were not involved in the study, interviewed 70 mothers, 15 Home Visitors and 2 Supervisors. The interviews lasted between 45 minutes to 1 hour. Interviews for the mothers were conducted at home and for the visitors at the ECD centres. Supervisors were interviewed at the head office in Kadoma. The content and process of the Reach Up intervention and the rationale for the questions on the interview guide were explained to the researchers who then trained the research assistants to

conduct the interviews. Interviews were conducted in Shona and translated into English for analysis.

Interviews with the PI in Brazil and agency lead in Zimbabwe were conducted by one of the authors (JS).

Data analysis

The data from the email logs were used to develop a list of adaptations made and the successes or challenges the agencies may have had with implementation.

The qualitative interview data from the two countries were analysed utilizing the framework approach[21]. The framework approach has five stages which include familiarization, identifying the themes, indexing, charting, mapping and interpretation. The analysis was done separately for each of the three groups of participants (mothers, home visitors and supervisors) and for each country. Within each group of participants, we categorised themes according to whether they related to the acceptability, appropriateness or feasibility of the Reach-Up intervention in terms of content, materials and process of delivery. Transcripts were coded by hand and charts constructed to guide interpretation. Following this, the analyses by country were integrated to form common themes and in a final step the analyses were compared across participants. The thematic framework was developed by JS and HBH. JS coded the transcripts and prepared the charts, with ongoing discussion and input from HBH, and the final stage of mapping and interpretation was conducted by JS and HBH.

Data from the evaluation checklists from supervised visits in Brazil and Zimbabwe were summarised as percentages for each question.

Results

The results are divided into three main sections based on the data collected: (1) Agency feedback on the Reach Up Program and common adaptations; (2) In-depth interviews (mothers, home visitors and supervisors) conducted in 2 countries – Brazil and Zimbabwe; (3) Evaluation of the quality of visits in Zimbabwe.

Agency feedback on Reach Up Program

Aspects of the Reach Up program that agency leads viewed as important were its rich evidence base and the ability to adapt the program to the different contexts and needs of the countries. In Brazil, the PI indicated the importance of being able to obtain assistance with the planning and adaptation of the materials. The ability to speak to the team through email and video conferencing helped with ensuring that planning and adaptation questions could be answered in a timely manner.

'The members of the team were friendly and they were available to speak if I had questions. They also helped with the adaptations…after the pilot project we realized that the toys had to be more attractive to the Brazilian mothers.'

In Zimbabwe, another reason indicated by one of the agency leaders was the ability to integrate it with an existing ECD programme for young children that they conducted through the ECD centres in Sanyati.

'We have ECD programs in the rural districts in Zimbabwe and when we heard about the Reach Up program we wanted to propose the possibility of integrating the stimulation program with what we were already doing in this district'

The JF Kapnek Trust also stated that the ability to change the delivery of the program from weekly to fortnightly improved the feasibility for integration. This was important in making the decision to implement the Reach Up program in this region.

Adaptations

Brazil: A pilot study of the acceptability of the Reach Up toys and activities was conducted in Brazil, between November 2014 and February 2015 with 100 mothers who were not participants of the main study. Adaptations were then made to some of the toys as mothers felt they were not attractive. Colours and textures were used to make the toys more attractive. However, some changes, had to be reversed as they affected the use of the toy to teach specific concepts. An example was plastic bottle tops used for a stacking activity and also to identify primary colors. The team wanted to add dots and stripes of different colors and were advised not to add decoration but stick to bottle tops in primary colours so as not to confuse the children.

An adaptation was made to the curriculum content to integrate some language activities as short messages for the mothers. We also worked with the Brazil team to adapt the curriculum from weekly to fortnightly visits to increase feasibility of implementation, and subsequently produced a fortnightly curriculum as part of the package. Training for the CHAs was also adapted to a series of 2 day workshops to accommodate their work schedule.

Zimbabwe: Fewer adaptations were done in Zimbabwe, mainly revision of the pictures to ensure they reflected the culture and the addition of local songs. The fortnightly curriculum was also used in Zimbabwe.

Examples of adaptations made to the Reach Up intervention program in Brazil, Zimbabwe and in additional countries where the program has now been implemented are given in Table 4.

Interviews

Summary of In-depth interviews

Acceptability: The major themes on acceptability that emerged from the interviews were focused mainly on acceptability of the materials, the home visiting delivery method and the intervention benefits to the children and to the mothers themselves. Acceptability of the Reach Up materials and the play activities was a main theme for the mothers and HVs (Table 5). Overall 60% (7 of 15 Brazil and 50 of 70 Zimbabwe) of the mothers interviewed stated that their view of the toys was at first unsure but then they began to appreciate the value of the play materials and activities for their children. In Brazil, some mothers (n=5) also saw benefits of the intervention to their children's development. Mothers in Zimbabwe (n=29) also commented on the benefits of the intervention to the development of their children, as one mother in Zimbabwe stated:

'I did not think the play materials would help my child…..my child can now identify body parts using the doll. The home visits are good'

The use of recyclable materials to make the toys was perceived as innovative by the mothers and visitors, as they never thought about using these materials to make the toys (Table 5). Mothers also believed that they could make toys from recyclable materials for their children and wanted a toy making workshop to be included in future plans for the program. They also noted the need to improve the durability of the materials. When asked about the play materials the home visitors had both positive and negative comments. The positive comments focused more on the acceptability by the children who participated in the intervention and also on the availability of the materials locally as they were recyclable and inexpensive (Table 5). The HVs stated that

most materials were liked by mothers including the soft toys (ball and doll), some plastic toys (bottle tops), puzzles, books, pictures-to-talk-about and blocks. However, a few HVs also stated that some mothers did not accept the materials and this influenced their ability to do the activities. The effect seen on the children in terms of their development, especially their improved speech and vocabulary also influenced the acceptability of the intervention to the mothers and home visitors. As one HV from Brazil stated:

'What I liked most was to see the development of children, you arrive at first and the mother says 'Look, he does not talk many things' and after a year you can see these children talking every word. We also could see the improved connection between mother and her child- which is our focus.'

One mother from Zimbabwe also stated:

'These activities help my child grow mentally and physically. Her language skills have improved. She is now able to interact well with others.'

The home visiting method was accepted by mothers. Over 80% (11of 15 Brazil, 64 of 70 Zimbabwe) of mothers had positive comments about the home visits (Table 5). Some stated that they were skeptical at first, as this was a new experience. However, mothers felt valued by the visitors and the development of the bond between both mothers and visitors was seen by the supervisors as important for the success of the program. The mothers felt that they had support to help their child to develop and this support also helped them to increase their confidence as parents. As one mother in Brazil stated:

'….my child is my first one, so I don't know what a child should be doing when she is one year old, if she should be talking or not, what is normal but the agent she knew, she would say let us teach him one more word'

All of the mothers interviewed believed that the intervention helped their child. Improvement in their children's readiness for school was also mentioned, mainly by mothers in Zimbabwe. As one mother from Zimbabwe stated:

'The program actually helped my child through improving her social skills and language skills. She is going to be a star when she starts school'

When the HVs were asked what they liked most about the program the majority 88% (8 of 9) in Brazil and 100% (15 of 15) in Zimbabwe, liked seeing the development of the child (Table 5).

The importance of relationships between the supervisor and visitor and the visitor and the mother was also highlighted in the interviews with the supervisors. The supervisors reported that they spent time during the intervention helping to motivate the visitors. The relationship between the visitor and the families was emphasized by the supervisors as important for the success of the intervention. As one supervisor from Brazil stated:

'It is very pleasant, the bond between agents and the families, they share intimate things, the trust, they share their problems, I am sure it will be fruitful'

The supervisors also believed that other regions within Brazil and Zimbabwe could benefit from the intervention. The major challenges they reported in the field related to perceived lack of commitment, from some mothers and home visitors.

Appropriateness: The main themes on appropriateness of the intervention that was stated in the interviews were about the importance of the training workshops, the need for additional training sessions and the perceptions of the Reach Up tools, such as the curriculum, toy manual and the supervisor manual. The training was perceived as important to the success of the interventions. The visitors and supervisors believed that the training they received prepared them for the home visits and they knew what they needed to do in the field. The role playing and practice sessions helped to improve the visitor's confidence (Table 6). As one HV stated:

'When I did the first visit I identified a lot with the training we had done, the simulations were very close to reality'

Most of the home visitors interviewed stated that the training workshop helped them feel prepared for the home visits, approximately 80% (7 of 9) in Brazil and 100% (15 of 15) in Zimbabwe. They felt the training workshops helped to increase their confidence, knowledge and skills. However, the HVs wanted additional training on building a positive relationship with the mother, dealing with an uncooperative child and dealing with problems that occur in communities (e.g. violence in communities) (Table 6).

Supervisors also felt there was a need for further training of the home visitors on how to use the curriculum as they felt they spent a lot of time at the beginning of the intervention encouraging the home visitors to complete the objectives and to focus on the key concepts for each activity.

The curriculum was perceived as an important guide with step-by-step instructions, both visitors and supervisors believed that it was an important tool in the field (Table 6). Over 50% of the HVs (5 of 9 Brazil and 11of 15 Zimbabwe) stated that the curriculum was clear, easy to use, with appropriate content. As one HV from Zimbabwe stated:

‘It is very useful. Sometimes I had doubts about a game, so I checked the curriculum to see which game was that….I always took it to the visit.’

However, the HVs also had some negative comments, mainly about the durability (Table 6).

Most of the HVs were able to complete the objectives required, however, on occasion they were unable to do so. The reasons given included, lack of interest from the child or mother, loss of toys and materials and lack of time (Table 6). Ease of use of the curriculum, time management, preparation before the visit, the relationship and cooperation of the mother and the positive interaction with the child were factors reported that facilitated completing the objectives.

The manuals provided in the Reach Up program were perceived as effective in enabling the visitors and supervisors to implement the intervention. The supervisors believed that the manuals provided were adequate for the home visits, however they needed more guidelines on their supervisory role in the field. As one supervisor from Brazil stated:

‘I think we need to train a bit more on things that happen during the visits which are unexpected, beyond the curriculum itself’

However, as the interventions progressed and the familiarity with the concepts and methods increased the HVs were able to conduct the activities appropriately and the supervisors felt that they had the appropriate tools and experience to help guide the HVs successfully.

Feasibility: The major theme that emerged surrounding the feasibility of implementation of the Reach Up intervention for the mothers was the ability to integrate with their daily lifestyle. Overall, mothers were able to conduct the activities during the week and opportunities for mothers to practice the activities between visits either daily or several times per week varied from 73% (11 of 15) mothers in Brazil to 93% (65 of 70) mothers in Zimbabwe. The

demonstrations by the visitors helped mothers to know the methods they could use to do the activities with their children (Table 7). As one mother from Zimbabwe stated:

'Sometimes I can do it 2 times per week. The visitor asked us to continue exactly what she taught us to do.'

Mothers felt the programme could be improved by including toy making workshops and providing more books and puzzles. Overall the mothers in both countries enjoyed the program and thought it should continue and be implemented throughout the country.

For the visitors, their perceptions on the ability to complete the objectives, the strategies to find the recyclable materials and the challenges to program process were main themes from their interviews (Table 7). The ability to complete the activities for each visit was perceived by the visitors as possible mainly through the relationship with the mothers and children. As one HV from Brazil stated:

'We noticed that when the mother stayed and participated, when I leave the toys in the house, they played. Otherwise when the mother was not participating the child did not do the activity during the week.'

Preparation before the visit also improved the success of the visits and this was highlighted by the supervisors and visitors. Through conversations with each other and advice from supervisors the visitors were able to overcome challenges with implementation (Table 7).

The sourcing of the required amount of recyclable materials was a challenge in both countries and a variety of sources were utilized including local shops, restaurants, friends and family members. In Brazil, the quantity of the toys to be produced and replaced was a challenge as some

toys such as blocks and puzzle pieces needed to be replaced frequently. In Zimbabwe they had a similar challenge and also had difficulty obtaining some of the materials needed. In Zimbabwe, through seeking help with this from the local community the program became a community activity and helped to build the relationship the supervisors and visitors had with the community.

For supervisors, identifying the quantities of materials needed and the challenges in completing the program were the main themes. The supervisors reported that, proper training, organized toy production, good relationships between visitors and mothers and emphasizing to the mothers the importance of spending time with their child are critical to the success of the programme. The feasibility of the implementation of the program was perceived as possible once the important components are available.

Evaluation of the quality of visits in Zimbabwe and Brazil

The observation checklist was used to measure the quality of the home visits. In Zimbabwe, the supervisors observed each home visitor conducting a visit at least once per month. In Brazil, the supervisors conducted supervisory visits monthly for the CDAs, however there were few observations conducted for the CHAs so the available information reflects the quality of visits for the CDAs. The summary of the checklists provided in Table 8a and b highlights the areas that are the focus of the visits.

In Zimbabwe, overall the visitors conducted the visits well with most aspects being done adequately or well for over 90% of visits. The interaction between the caregiver and visitor and the visitor and child was warm. The interactions between the visitor and child were very good with over 80% of these interactions being very warm, understanding and cooperative. The visitors were also very good when responding to the child's cues in 83.6% of visits. The visitor

shared responsibility for the activities with the mother 97.3% of the time and the overall atmosphere of the visit was happy to very happy 94.7% of the time. However, there were areas that needed improvement especially with the interaction with the caregiver. In 36.8% of visits the mothers' opinion was either not sought or sought only a little of the time. Encouragement of the mothers was either not done or done only a little of the time in 11.7% of the visits and was done most of the time in only 35.7% of visits.

In Brazil, the visitors also conducted the visits adequately or well for over 90% of the visits. The interactions between the visitors and the child were warm, understanding and cooperative for 93.7% of the visits and few of the interactions with the child were rated none or little of the time. Interactions between the visitors and the caregiver were warm and cooperative 96.8% of the time. The overall visits were happy to very happy 96.9% of the time. The areas for improvement were similar to those in Zimbabwe, and included seeking the caregiver's opinion which was done most of the time in only 43.8% of the visits and encouragement of the caregiver which was done most of the time in 56.3% of the visits.

Discussion

This study reported on implementation of Reach-Up a home-visiting early stimulation program for use with young children and their families in low and middle income countries (LMIC). The aspects of implementation included were the rationale for adopting the intervention, the adaptations made in several user countries, the acceptability, appropriateness and feasibility of implementing the intervention according to mothers, home visitors and supervisors in two countries, Brazil and Zimbabwe, and the fidelity of intervention implementation.

This study focuses on transporting an evidence-based intervention originally developed for the Jamaican setting to other LMIC countries. There are a growing number of models or frameworks

to categorise adaptations to evidence based interventions for different cultural contexts[22-24]. The cultural sensitivity model[24] categorises adaptations into surface and deep structure adaptations. The majority of adaptations made to the Reach-Up package involved surface structure adaptations, for example, matching the program materials to fit the characteristics of the new context. These adaptations included adaptations in language (translation of materials), delivery personnel (e.g. use of health workers, preschool staff), and materials (e.g. changing pictures to reflect the culture, adapting the toys according to availability of resources and to promote acceptability). Stirman et al developed a framework for coding adaptations that includes coding changes to the content (e.g. tailoring, adding, removing, reordering, substitutions), context (e.g. delivery personnel, format of delivery) and training and evaluation (e.g. how staff are trained)[25]. Adaptations to the Reach-Up package included all of these elements. Content was added (for example, health and nutrition messages), reordered (for example, the introduction of some play activities were delayed), substituted (e.g. local games and songs were used instead of the original material) and tailored (e.g. different materials used to make toys and/or toys adapted to make them more acceptable). Changes were also made to the delivery personnel to fit with the organisational context and the staff available and to the format of delivery (e.g. fortnightly rather than weekly visits). Changes to staff training were minimal and mostly involved changes to the schedule to accommodate work commitments. When transporting evidence-based interventions, adaptations are required to ensure a good cultural fit and to ensure the intervention fits into the adopting agency's method of functioning to promote adoption and sustainability[26]. However, for continued effectiveness across contexts, it is important that the core components of the intervention are maintained [27,28] and the involvement of persons who have a thorough

understanding of the intervention can help to ensure that adaptations are appropriate. This was recognised as a strength by the implementing teams in Zimbabwe and Brazil.

Results from the in-depth interviews indicated that the Reach-Up intervention was acceptable and appropriate according to mothers, home visitors and supervisors. Although there were some initial reservations related to the intervention, specifically relating to the toys made from recycled materials from the mothers and home visitors, these reservations were quickly overcome when it was evident that the children enjoyed playing with the materials and were seen to benefit from them in terms of improved development. This acceptability was also shown by the retention of mothers and children in the intervention and by the fact that the mothers either started to make toys themselves (in Zimbabwe) or expressed an interest to do so (in Brazil). Home visitors and mothers also reported enjoying the intervention and benefiting from it. This is similar to the perceptions of mothers who participated in an intervention program in rural Malawi[29]. The importance of tangible and observable benefits of intervention, both to the program recipients and to the staff delivering the programme has been documented previously[30,31]. The home visitors reported increased confidence and increased respect in their communities in both Brazil and Zimbabwe and this concurs with a previous qualitative evaluation in Jamaica which found that health workers and nurses reported benefits to themselves in terms of job satisfaction, confidence, interpersonal skills and knowledge[32]. The importance of interventions being fun and enjoyable is an under-reported factor in the literature on preventative interventions and is important for participant engagement[33].

The Reach-Up package was also feasible to implement although several challenges were identified in both countries. Enabling factors included the provision of a clear, structured curriculum and training in how to use it which included demonstration, rehearsal and practice

with feedback and ongoing supervision. These factors have been identified as key to successful early child development programs[4,6]. In addition, over 70% of mothers in both countries reported that they were able to do the play activities with their child at home either every day or several times per week.

Staff turnover was a particular challenge in Brazil. One of the objectives of the Brazilian project was to compare using the already existing cadre of Community Health Agents and creating a new cadre specifically dedicated to the intervention. Half of the home visitors who were employed in the health sector dropped out from the intervention during the study whereas staff turn-over was not a problem with the full time CDAs. This is despite the fact that the CHAs received a stipend equivalent to 30% of their salary for conducting the visits. The interviews showed that the main reason was the high burden of existing work so the CHAs felt they did not have enough time to conduct the visits. In addition, other urgent health matters such as combating dengue fever and immunization promotion, were prioritized and this affected their commitment to the intervention. Ensuring the additional responsibilities are feasible in the context and do not overburden staff or interfere with their existing duties is one of the key challenges in integrating interventions into existing services. The number of visits assigned to the health workers in Brazil may have been too many and was approximately twice that assigned to the teaching assistants in Zimbabwe.

Another problem related to the sourcing of materials for the toys, making sufficient toys and transporting the necessary materials to the intervention sites. In some countries, some of the play materials (e.g. the books, puzzles and blocks) have been manufactured locally but transporting the materials can still be a problem, especially to rural and/or dispersed areas. Challenges around building positive supportive relationships between home visitors and mothers and home visitors

and supervisors were also evident. Home visitors reported difficulties in engaging some mothers in the intervention and both home visitors and supervisors reported that lack of commitment to the programme by mothers was a challenge. Community health workers and nurses who implemented an ECD intervention in health centres in Jamaica also reported that mothers' attitude or behaviour was a challenge[32]. Positive relationships are a key component for program effectiveness and hence future training needs to include a greater focus on the skills required, for example, reflective listening, showing empathy, using open-ended questions and collaborative working[34]. Additional further training needs identified by supervisors were training in supervisory skills and in problem-solving. The importance of supervision was highlighted by Tomlinson et al., who have indicated that for interventions at scale the development of soft skills of the leadership team are essential[35].

The monitoring of the quality of the home visits using a supervisor checklist in Zimbabwe and Brazil showed that most aspects of the intervention were implemented adequately or very well. The aspects of quality that were rated lowest related to the home visitors interaction with the mother (asking the mother's opinion in both countries and encouraging the mother, and using a collaborative approach in Zimbabwe). Other studies have also highlighted low quality for aspects of the home visitors' interaction with the caregiver in home visiting ECD programmes[20,32], suggesting that these skills may need additional time to develop and/or a greater focus needs to be given to these skills during initial training. Conversely, home visitors scored very highly on their interactions with the child.

The strengths of the study include the inclusion of the perspectives of multiple participants including mothers, home visitors and supervisors. The perspectives of the program recipients (mothers) and front line delivery staff (home visitors and supervisors) about the acceptability,

appropriateness and feasibility of the content and process of delivery of the intervention will affect their engagement in the intervention and is critical for programme success. These perspectives are also important to help identify barriers and enablers to implementation and thus inform further development of the intervention materials. Interviews were conducted by persons who were not involved in intervention implementation to reduce the likelihood that participants would only give favourable comments and responses.

Limitations of the study include the fact that mothers and home visitors were selected according to their availability for interview. It is possible that these participants did not represent the views of the wider group, for example, more enthusiastic and willing mothers may have been more available for interview. However, within all groups of participants, positive and negative points were made about the intervention content and/or process. The data presented on the quality of the home visits is based on supervisor checklists designed primarily to help supervisors provide high quality feedback to the home visitors and to identify training needs. Further although the visitors knew the supervisors well, the presence of the supervisor may have affected the visitor's actions. The information is however useful in providing an overview of the strengths and weaknesses of intervention delivery.

In conclusion the Reach Up program can be used to build capacity for implementation of parenting programs in low and middle income countries. The program and materials were well accepted and training was appropriate. Implementation was feasible when delivered by CDAs in in Brazil and teaching assistants in Zimbabwe and quality of implementation was good. Adaptability of the program is a strength and will facilitate use in other countries. The study also identified some aspects that need expansion such as supervisor training. The challenges with implementation by persons already employed to health services, highlights the need for attention

to staff workloads when integrating with existing services. Scale up in many settings may require expansion of existing cadres of staff or establishment of a new cadre of delivery agents.

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Table 1 Descriptions of the Interventions in Brazil and Zimbabwe

	Brazil	**Zimbabwe**
Region	Sao Paulo	Sanyati
Type of Communities	Urban districts in the southwest region of Sao Paulo. The region contains slums and over 30% of the population are receiving half the minimum wage.	Rural district located in northern central Zimbabwe. The district comprises farming and mining communities.
Funding Agencies	Maria Cecilia Vidigal Foundation and Grand Challenges Canada (GCC)	Open Society Foundations
Implementing Agency	University of Sao Paulo	J.F. Kapnek Trust Foundation
Supervisors	3 Supervisors	2 Supervisors
Home Visitors	10 Community Health Agents 5 Child Development Agents	24 ECD Teaching Assistants
Visit Frequency	Fortnightly	Fortnightly
Visit Duration	20-50 minutes	30-50 minutes

Table 2 Description of Reach Up Training Package

Component	Description
Adaptation and Planning Manual	The planning and adaptation manual provides guidelines to agencies on how the intervention can be adapted to their context and the steps that need to be taken when planning the intervention.
Training Manual and Demonstration Videos	The training manual includes a suggested training schedule, aims and activities for each training session, and guides for using various films, in the training sessions. The content includes topics such as how children develop and the importance of parents, how to conduct a successful home visit, how to use the curriculum, how to demonstrate specific activites and toy making. Training films were developed by the Reach Up team in collaboration with Development Media International. Filming was done in Jamaica, Peru and Bangladesh, where the intervention had been implemented previously. Three 15-minute films (one in each country) demonstrate key steps in a home visit There are 28 short films of approximately 2-3 minutes that show methods used and how to demonstrate specific activities.
Curriculum	The curriculum is designed for use by community workers with primary education and gives activities and goals for each visit organized by Materials needed, Objectives of the visit, and Things to Do (activities). To support the visitor, there are brief reminders of steps in introducing an activity and some suggested dialogue. A weekly and fortnightly curriculum are available.
Toy Manual	The toy manual gives step-by-step illustrated instructions on how to make all the play materials
Supervisor Manual	The Supervisor Manual provides guidelines for supervision and the evaluation checklist for observing home visits. It includes qualities of a supervision, and their responsibilities, how to provide supportive feedback and build positive relationships with the visitors. The content is supported by short scenarios that depict challenges that supervisors and visitors may encounter, which are used as practice activities during supervisor training.

Table 3 Sample of questions used to conduct in-depth interviews with mothers, home visitors and supervisors.

Questions for Mothers	**Questions for Supervisors**
What do you think about the home visits?	After the training workshops, how prepared were you for supervising the home visits?
What do you think of the play materials/ toys?	Did you need additional training sessions? What sessions were needed?
Have you made any toys/ books for your child?	Did your home visitors have any difficulties using the curriculum?
Were there activities that you liked/ did not like?	Were the home visitors able to follow all the objectives?
How often did you get to do these activities with your child between visits?	What do you think about the Supervisor Manual? What other information would have been helpful?
What do you think of this program?	Did you use the Toy Manual to make any toys? How easy was it for you to use?
Questions for Home Visitors	Did you face any challenges in finding the recyclable materials/other materials needed to make the toys?
After the training workshops, how prepared were you for the home visits?	How acceptable were the materials to the mothers? And to the home visitors?
Did you need additional training sessions? What sessions were needed?	To what extent did the mothers and children value the play activities?
What do you think about this curriculum?	What activities did the visitors do well/ have difficulties with?
For each visit you were asked to complete a set of objectives, were you able to complete these?	How acceptable was the home visiting delivery/ frequency to the mothers and the home visitors?
What did you think about the toy manual?	Did you face any challenges supervising the home visits?
What did you think about the play materials?	Overall, what do you think about the Reach Up Program?
Did you have any difficulties with the play materials?	
How did the mothers feel about the play materials?	
What challenges did you face during the program?	
What did you like most about the ReachUp program?	

Table 4 Common Adaptations utilized with the Reach Up intervention program

Adaptations	Changes made in implementing countries	Examples
Content*	• Pictures to reflect local people and activities that reflect the daily living context in the country	• The faces and clothes of persons in the picture books and the pictures-to-talk-about changed.
	• Insertion of Messages	• Nutrition, Health, Sanitation e.g. In Guatemala nutrition and health messages are included in visit
	• Insertion of local songs and games	• In Brazil, Zimbabwe and Guatemala local songs are included
	• Delay of Activities	• In Bolivia the inclusion of the Crayon and Paper activities were delayed until the children were older.
	• Cultural Sensitivity	• In Brazil, an adaptation to include a shirt and pants for the 'male' dolls was included
Resources	• Identification of appropriate recyclable materials to produce toys	• Modifications to toys to match the types of materials available (e.g. plastic bottles)
	• Identification of local manufacturers for mass production of materials (books, pictures, blocks and puzzles)	• In Brazil the puzzles, blocks and books and In Zimbabwe the books were produced by local manufacturers.
Training	• Segmentation of the 10 day training to accommodate work schedules and other commitments	• In Brazil the training was conducted in different segments, five 2-day sessions
Personnel	• In different countries, different types of visitors are used	• In Brazil health care workers and child development agents were used. In Zimbabwe, paraprofessionals who worked as teaching assistants were utilized to conduct the home visits. In Guatemala, 'Madre Guias' or Mother Guides are used as they are seen as community leaders

* Adaptation was led by the local investigators with detailed knowledge of the context, in consultation with the Reach Up team to ensure concepts remained clear. Pictures were redrawn by local artists. In Brazil toy materials were also piloted with mothers similar to those in the program

Table 5 Perceptions of mothers, home visitors and supervisors on the acceptability of the Reach Up intervention program

Sub-Themes	Brazil	Zimbabwe
Mothers		
Positive perceptions of play materials	*'I loved the toys, every time she [the home visitor]brought a toy, my daughter stayed very happy…I also enjoyed the toys and visits too'*	*'All the play materials were just good. My child loved to play with the material, all of them. She was so excited to learn how to play with the play material'*
Negative perceptions of play materials	*'I had to let it go and tolerate the noise in my head, he screamed, jumped, went running with the toy, but we have to handle this'*	*'I did not think the play materials would help my child'* *'I was happy though at first I thought the materials were hard to use.'*
Perceptions of intervention benefits to mothers and children	*'Yes, I think so, his motor development, coordination….It was good for him…he learned many things and new words'*	*'She is now able to do a number of activities, her talking has improved, she now has a smart mind'*
	'Before the visits, he did not have a good development and he did not like to play with other children, he was hiding. After the visits he began playing with other children'	*'The program is helpful to my child and I also benefit from the program. I am able to teach my child and am sharing more time with my child'*
Home Visitors		
Positive perceptions of play materials	*'Well it exceeded my expectations……[the mothers] liked it. The children also liked it a lot'* *'I really liked [the play materials], not just me, but the mothers too. Many mothers praised the toys, they liked the recyclable more than the manufactured'*	*'The materials are very good. They help develop the child holistically'* *'The play materials are good and colourful. They are attractive to children….some children refuse to give them back and cry'*
Negative perceptions of play materials	*'I had a problem with a mother who did not like the doll, because he was a boy. She told me her husband was sexist'*	*'Overall our play materials are few compared to the number of children we work with'* *'The books are easily torn and dirty'* *'Perhaps hard covers are needed for books; bottle tops can be dangerous if the child tries to eat it up.'*
Perceptions of intervention benefits to mothers and children	*'I see the difference when I started with these children and how they are now and I keep thinking about these*	*'Fathers are beginning to like the program also and are encouraging mothers to honour time for the home*

	children who do not have this access'	*visits'* *'I appreciated the good relationships I noted between the child, mother and I as a home visitor. We became close companions'* *'The program is giving me great respect in this village'*

Table 5 Continued

Sub-Themes	Brazil	Zimbabwe
Supervisors		
Positive perceptions of play materials Acceptability to mothers/children Acceptability to home visitors Personal belief	*'Mostly not so bad. It was good, but we had to insist more on some mothers so they could understand the point. We tried to build a bond between the mother and her children. Overall, it had good acceptance.'* *'I think the girls accepted the materials well, they would eventually suggest how to do, how to produce them'* *'I think working with recyclables is very important, even to myself. I did not see it as a toy before, I brought up the idea to my children and they loved it'*	*'Some mothers were happy with the materials and some were not. They want commercial made ones. You hear comments like 'Why do they bring us these homemade materials?'* *'It was an eye opener to them [HVs] and they liked the toys as they were going to make use of recyclable materials'* *'The HVs have accepted the materials and are eager to use them'*
Perceptions of play materials Acceptability to mothers/children Acceptability to home visitors Personal belief	*'They liked the manufactured toys (puzzles, doll and blocks). Mothers don't care for recycled toys.'* *'We had good acceptance. In another country they may just bring the bottle and it's ok. Here, if we just take the bottle it doesn't work. So you have to do adaptations, to make the toy more beautiful, to get their attention, especially for the mothers'*	*'At first, they did not appreciate them for they were expecting manufactured toys.'* *'Some mothers were happy with the materials and some were not. They want commercial made ones. You hear comments like 'Why do they bring us these homemade materials''*
Positive perceptions of home visiting delivery Acceptability to mothers/children Acceptability to home visitors Personal belief	*'….I think they [mothers] had two major gains, feeling that they had support to deal with their children and being able to exchange information, in many cases the agents became friends with the mom, and they still talk.'* *'Many of them [mothers] were*	*'At first mothers did not have a clue of what was going to take place and they had mixed feelings. Now they all like it and especially having the HVs at their home this makes them feel valued and so value the progress'* *'The caregivers have really*

	glad to see their children developing and understanding that it had to do with the intervention, that she was able to stimulate her baby'	*accepted, the mothers like the program'* *'The HVs enjoy their visiting and this program has made them gain respect in their community and they have become popular and they like it'*
Positive Perceptions of the Reach Up tools	*'It is very useful. Sometimes I had doubts about a game, so I checked the curriculum to see which game was that…I always took it to the visit'* *'[The toy manual]steps are easy to follow'*	*'The whole thing is clear and well explained'* *'Using the curriculum is easy because of specified objectives and materials to use'* *'[In the Toy manual] the instructions are very clear'*
Negative Perceptions of the Reach Up tools	*'It should focus more on how to deal with mothers……in reality sometimes the mothers do not really want to participate'*	*' I would like to learn more on how to achieve set objectives, some activities might be overwhelming resulting in difficulties in achieving objectives'*

Table 5 Continued

Sub-Themes	**Brazil**	**Zimbabwe**
Supervisors		
Negative perceptions of home visiting delivery Acceptability to mothers/children Acceptability to home visitors Personal belief	*'In the beginning we had a hard time convincing the mothers to receive the agents every 15 days. However, when the visits began, many of them started loving it'*	*'At first the mothers did not have a clue of what was going to take place and they had mixed feelings'*
Overall ReachUp program Influence on children Influence on mothers Influence on home visitors Influence on personal view of self	*'I think they [mothers] understood as a way, a form, because moms don't know how to play in an educative way. We gave them instruments to play with their kids educating them. The project in a way creates an opportunity for them to play with their children'*	*'I think this is the best program that has happened to Zimbabwe. It is a program that is going to change the perceptions of parents towards their infants'* *'It is a program that has brought families together because each member in the family wants to play with the child and this includes fathers'* *'It is a program that will bring new beginnings, a new generation which is aware of what is going on around them'*

Table 6 Perceptions of home visitors and supervisors on the appropriateness of the Reach Up intervention program

Sub-Themes	Brazil	Zimbabwe
Home Visitor		
Importance of Training	*'It was a great training, we felt much more confident to continue what we were already doing'* *'[The second trainer] told us to be more flexible while dealing with the mother and the child. Before that, we had to follow step-by-step, every detail orderly'*	*'I was well trained, I did not face any challenges on what to do with the child in the field'* *'I came from [the training] knowing what to go and with children'* *'I was helped by the role plays and corrections during training'*
Positive Perceptions of the Reach Up tools	*'It is very useful. Sometimes I had doubts about a game, so I checked the curriculum to see which game was that…I always took it to the visit'* *'[The toy manual]steps are easy to follow'*	*'The whole thing is clear and well explained'* *'Using the curriculum is easy because of specified objectives and materials to use'* *'[In the Toy manual] the instructions are very clear'*
Negative Perceptions of the Reach Up tools	*'It should focus more on how to deal with mothers……in reality sometimes the mothers do not really want to participate'*	*' I would like to learn more on how to achieve set objectives, some activities might be overwhelming resulting in difficulties in achieving objectives'*
Supervisors		
Importance of training		
Training Workshop		
Sufficient for Home Visits	*'I was prepared…but was not quite sure how it was going to be like when we start home visiting'*	*'Theoretically, I felt ready. In practice….I felt insecure….the workshop was very helpful but practicing is the best training you can have'*
Insufficient for Supervisory Role	*'….having that orientation [training] helps you feel safe to pass the guidance for the visitors. So for me this part [training workshop] was very important'*	*'After the training workshop I had a better understanding of the home visit'* *'The training was so comprehensive because it covered all the areas'*
Additional Training		
Practical Aspects Specific details of Supervision	*'On the real home visits you see the differences between theory and practice, mainly due to cultural differences…..you must know how to make it [the visit] work and adapt if necessary'*	*'The additional training would have been the one that stress on my role as a supervisor…..but what I did after that I had to read the supervisor manual'*

Table 6 Continued

Sub-Themes	Brazil	Zimbabwe
Supervisors		
Importance of training		
Workshop Training for Home Visitors	*'Some visits needed interventions, we had to guide and sit and talk, explain better…because sometimes they [the visitors] forget a step which has to be done. So I think it is always important to have this supervision and guidance so the work comes out with the expected quality.'*	*'Some were not reading the curriculum to understand it and they were getting into problems in demonstrating the activities to the mother.'*
Emphasis needed on key concepts	*'…in the beginning they were a bit limited to it [the curriculum] , holding them back, but as they start to feel at ease, according to the child's lead, this broadened'*	*'At first the HVs thought that the objectives to be achieved by the baby were so many, so they left out some objectives'*
Importance of objectives		
Use of the curriculum		
Barriers to completion of objectives	*'They succeeded but in some cases we had to correct a few things'*	*'HVs were failing to manage their time. This resulted in not finishing the list of objectives for a particular session'*
Lack of time management	*'When they are effectively guided, yes they can achieve all the goals'*	
Inappropriate use of curriculum		

Table 7 Perceptions of mothers, home visitors and supervisors on the feasibility of the Reach Up intervention program

Sub-Themes	Brazil	Zimbabwe
Mothers		
Integrating activities into lifestyle	*'I always played with him. In the afternoons when things were calmer. I always played with him'* *'I did not play every time, usually let her play alone, I played a couple of times a week, at night'* *'During the week, could not play so much because of short time. But when I could play with her, I did enough……it was not every day'*	*'I could, together with my child, play with the materials left 3 or 4 times per week. Sometimes we could do more activities depending on my schedule'* *'We do them every day since there is less work in the fields. Most of the time we will be home playing'* *'We get into these activities several times before the visits because the child asks me to join her whenever she feels that she wants to play with the play materials'*
Home Visitors		
Successful Strategies used to complete objectives	*'You read the script before you leave home, you prepare for what you will do in the house'* *'The mother's participation helped me a lot, when the mother took part, all occurred wonderfully well'*	*'The practice which mother does with the child helps us to complete objectives'* *'…by managing time when working with the child depending on the age of the child'*
Challenges faced in completing objectives	*'Some of the mothers, sometimes they were in a hurry….and you have to rush through the activities'* *'We face challenges if we find the child sick and we fail to practice with the child'*	*'The greatest difficulty was convincing the mothers to interact'* *'….when the baby was sleeping or sick'*
Challenges/ Barriers to program process	*'They did not take much care of the toys, they used to think 'ah, it is recycled, it is easy to make', they did not take care'*	*'Some parents don't look after the toys well'* *'On my part as HV sometimes distance for walking between plots is tiresome. Perhaps some bicycles would make it much easier to move from point A to B'*
Strategies used to find the recyclable materials		*'We get materials from our supervisors and some like bottle tops from the local shops'*

Challenges faced in producing toys/materials		*'I have a challenge in getting some of the materials to make toys like cardboard boxes'*

Table 7 Continued

Sub-Themes	Brazil	Zimbabwe
Supervisors		
Materials		
Strategies to identify appropriate recyclable materials	*'We had to hunt bigger bottle tops. We needed more than 3000 bottle tops and the girls came with suggestions and in the end, we made[cardboard] tops to replace the missing bottle tops'*	*'It was not a big issue finding recyclable materials. Friends and relatives were included in the collection of these materials. We also encouraged the HVs to collect materials when they came across such'*
Local Shops Co-workers/ Friends	*'....there were several people and establishments like cafes and restaurants who provided and stocked materials for us, but sometimes we had trouble collecting them'*	
Challenges with recyclable materials	*'We had an issue with the materials, related to production; it was the challenge to get the recycled materials, not to make the toys'*	*'Time was the major issue. It was like time was never on our side because we had plenty to make before we start the visits'*
Cleaning of materials difficult Time to locate and produce Identifying appropriate materials difficult Transporting difficult	*'For example cleaning the milk packs was very difficult, we used that to make the cart, but we substituted for a bottle, which was much better'*	*'Sometimes you might not get the proper sizes that you want e.g. blocks'*
Challenges/ Barriers to program process	*'It is very complex, even though it does not seem, we had to coordinate; structure in all in an organized fashion and keep producing the toys'*	*'HVs pulling out of the program after the training'* *'HVs repeating mistakes highlighted before'*
Time management Scheduling Lack of caregiver/parent commitment Relationship between HV and Supervisor		

Table 8 Summary of the evaluation of the Home Visits utilizing the Reach Up Evaluation Checklist in Zimbabwe

Checklist Items	***% of Observed Visits (n=622)***			
	None	*A Little*	*Adequately*	*Very Well*
Visitor placed emphasis on language development	**1.0**	**9.5**	**32.3**	**57.2**
	Did not explain	*A Little*	*Adequately*	*Very Well*
Visitor explained activities to caregiver	**1.0**	**4.5**	**34.2**	**60.3**
	Did not demonstrate	*A Little*	*Adequately*	*Very Well*
Visitor demonstrated activities to caregiver	**1.0**	**2.3**	**32.2**	**64.7**
Visitor demonstrated activities to child	**1.1**	**1.6**	**29.9**	**66.5**
	Did not ask	*None*	*Some of the time*	*Most of the time*
Caregiver did activities alone with child	**1.6**	**1.0**	**37.6**	**58.8**
	Did not ask	*Few topics remembered*	*Some topics remembered*	*Most topics remembered*
Review of activities	**3.4**	**0.5**	**19.1**	**75.4**
	None	*Little of the time*	*Some of the time*	*Most of the time*
Visitor listened to caregiver	**1.1**	**2.6**	**20.7**	**75.6**
Visitor Responsive to Caregiver	**0.8**	**8.7**	**26.7**	**62.7**
Visitor asked for Caregiver's Opinion	**6.1**	**30.7**	**39.9**	**22.3**
Visitor encouraged Caregiver	**1.4**	**10.3**	**51.3**	**35.9**
Overall relationship Between Visitor and Caregiver warm, understanding and cooperative	**1.1**	**3.1**	**40.4**	**55.5**
	None	*Little of the time*	*Some of the time*	*Most of the time*
Visitor responded to child	**0.6**	**0.6**	**14.1**	**83.6**
Visitor praised child	**0.6**	**1.1**	**14.1**	**83.2**
Visitor gave child enough time to explore materials	**1.4**	**5.1**	**28.9**	**63.3**
Overall relationship Between Visitor and Child warm, understanding and cooperative	**0.6**	**0.6**	**16.7**	**80.5**
	None	*Little of the time*	*Some of the time*	*Most of the time*
Child actively participated in visit	**0.5**	**2.1**	**13.2**	**83.3**

Caregiver actively participated in visit	**1.0**	**2.1**	**15.9**	**80.7**
	Dominating	*Insufficient Participation*	*Some Sharing*	*Sharing*
Overall attitude of Visitor	**0.8**	**1.0**	**50.0**	**47.3**
	Unhappy, Uncomfortable	*Neutral*	*Happy*	*Very Happy*
Overall atmosphere of the visit (Very Happy)	**0.3**	**4.0**	**60.0**	**34.7**

Table 8 Continued

Checklist Items	***% of Observed Visits (n=64)***			
	None	*A Little*	*Adequately*	*Very Well*
Visitor placed emphasis on language development	**3.1**	**7.8**	**34.4**	**54.7**
	Did not explain	*A Little*	*Adequately*	*Very Well*
Visitor explained activities to caregiver	**1.6**	**7.8**	**21.9**	**68.7**
	Did not demonstrate	*A Little*	*Adequately*	*Very Well*
Visitor demonstrated activities to caregiver	**3.1**	**3.1**	**37.5**	**56.3**
Visitor demonstrated activities to child	**4.7**	**3.1**	**20.3**	**71.9**
	Did not ask	*None*	*Some of the time*	*Most of the time*
Caregiver did activities alone with child	**1.6**	**9.3**	**21.9**	**67.2**
		Few topics	*Some topics*	*Most topics*

	Did not ask	*remembered*	*remembered*	*remembered*
Review of activities	**3.1**	**6.3**	**15.6**	**75.0**
	None	*Little of the time*	*Some of the time*	*Most of the time*
Visitor listened to caregiver	**1.6**	**1.6**	**7.8**	**89.0**
Visitor Responsive to Caregiver	**1.6**	**1.6**	**6.3**	**90.6**
Visitor asked for Caregiver's Opinion	**9.4**	**10.9**	**35.9**	**43.8**
Visitor encouraged Caregiver	**3.1**	**9.4**	**31.2**	**56.3**
Overall relationship Between Visitor and Caregiver warm, understanding and cooperative	**0.0**	**1.6**	**1.6**	**96.8**
	None	*Little of the time*	*Some of the time*	*Most of the time*
Visitor responded to child	**3.1**	**0.0**	**6.3**	**90.6**
Visitor praised child	**4.7**	**0.0**	**7.8**	**87.5**
Visitor gave child enough time to explore materials	**4.7**	**1.6**	**18.7**	**75.0**
Overall relationship Between Visitor and Child warm, understanding and cooperative	**3.1**	**1.6**	**1.6**	**93.7**
	None	*Little of the time*	*Some of the time*	*Most of the time*
Child actively participated in visit	**4.7**	**0.0**	**3.1**	**92.2**
Caregiver actively participated in visit	**1.6**	**0.0**	**4.7**	**93.7**
	Dominating	*Insufficient Participation*	*Some Sharing*	*Sharing*
Overall attitude of Visitor	**0.0**	**0.0**	**3.1**	**96.9**
	Unhappy, Uncomfortable	*Neutral*	*Happy*	*Very Happy*
Overall atmosphere of the visit (Very Happy)	**0.0**	**3.1**	**59.4**	**37.5**

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2